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II. *Some positions respecting the influence of the Voltaic Battery in obviating the effects of the division of the eighth pair of nerves. Drawn up by A. P. WILSON PHILIP, M.D. F.R.S. Edin. Communicated by B. C. BRODIE, Esq. F.R.S.*

Read July 5, 1821.

DR. PHILIP finding that **Mr. BRODIE** did not think what had been done sufficient to establish certain positions which **Dr. PHILIP** had stated, he, for **Mr. BRODIE**'s satisfaction, and with his assistance, entered on an investigation, with respect to the results of which, **Mr. BRODIE** agrees with him. They were the following.

In some experiments in which the nerves of the eighth pair were divided in the neck of a rabbit, and the ends not displaced, and the animal was allowed to live some hours, it was found that food swallowed immediately before the division of the nerves, was considerably digested, even when the divided ends of the nerves had retracted to the distance of a quarter of an inch from each other.

In other experiments in which, after the division of the nerves, the divided ends had been turned completely away from each other, little or no perfectly digested food, when the animal was allowed to live some hours, was found in the stomach; and the longer the animal lived, the smaller was the proportion of digested food found in the stomach; the great mass having the appearance of masticated food, which was not sensibly lessened in quantity, however long the

animal lived. In an experiment in which, under such circumstances, the stomach was exposed, from the time of the division of the nerves, to the influence of a voltaic battery sent through the lower portion of the divided nerves, its contents were apparently as much changed as they would have been in the same time in the healthy animal. The change was also of the same kind, the contents of the stomach assuming a dark colour, and those of the pyloric end being more uniform, and of a firmer consistence than those of the central and cardiac portions of the stomach, while the whole contents became less in quantity.

The division of the nerves, in both ways, produced difficulty of breathing and efforts to vomit; neither of which occurred when the stomach and lungs were brought under the influence of a voltaic battery, sent through the lower portion of the divided nerves.*

When, under the foregoing circumstances, the lungs had not been exposed to the voltaic influence, and the animal had been allowed to live for five or six hours, they were found much congested: in the rabbit which had been submitted to this influence, they seemed quite healthy.

* Mr. BRODIE was not present till after the death of the animal, but this fact was observed by Mr. BROUGHTON and others.